vegetation can be established.

- Add vegetated jump-outs similar to those used in Banff National Park wherever continuous fencing is required. Jump-outs provide opportunities for wildlife trapped within the road corridor to escape and return to habitat areas. Jump-outs are to be placed at intervals not to exceed ˚ mile, and should be placed adjacent to bridge structures.
- Use natural bottoms for all culverts utilized for wildlife and stream crossings. “Floor” material to be chosen with respect to adjacent natural conditions and to the intended use of the crossing in question.
- Develop major wildlife undercrossings so they are of sufficient size for passage of bears and ungulates.
- Protect surrounding habitat leading up to crossings from noise, road dust, and headlights to the extent possible by use of earth berms and plantings.

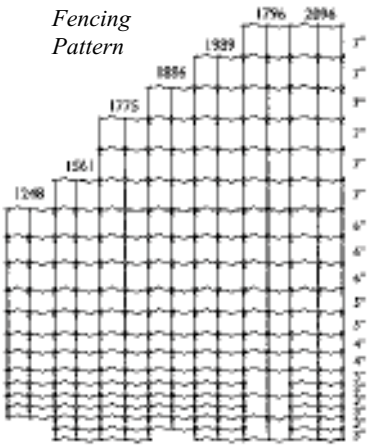
Wildlife Fencing:

The purpose of wildlife fencing is to control movement of wildlife. The fencing is intended to restrict animal movement across the road and to funnel wildlife toward crossing structures.

Fencing located in and around existing vegetative cover in order to minimize visual impact of the fencing.

- Use 8’ high page mill fencing to guide wildlife toward crossing structures.
- Implement fencing along both sides of the road where US 93 crosses through areas of existing habitat, restored habitat, and/or areas where there is frequent movement of wildlife. End fencing in an area that deters wildlife, such as a bridge structure, a topographic feature such as a steep change in grade, or a populated area. Fencing should not end in an area that is good habitat for wildlife.
- In areas designated for continuous fencing, use cattle guards to allow driveways and roads to connect with US 93. The exact location and length of fencing to be determined during the design phase.
- In areas where individual wildlife crossings are located, locate fencing at both ends of the crossing in a wing pattern to guide wildlife into a crossing. Length of each side of fencing in the wing pattern varies depending upon specific site conditions, but an approximate length 150’ is suggested. The exact location and length of fencing to be determined during the design phase.
- When there is a cross-sectional change in grade, locate fencing on the downhill side so that drivers and passengers have an unobstructed view of the surrounding landscape.
- Where possible, locate fencing in and around existing vegetative cover in order to minimize visual impact of the fencing.
- Construct fencing in two

Fencing Pattern



sections – (1) the 8' fencing above ground and (2) fencing buried underground to serve as a dig barrier buried. Use a locking knot to tie the two together.

- Establish a maintenance program to ensure that any damage to the fencing is repaired in a timely manner. Identify the necessary funds for the maintenance program.
- The approximate size of the fencing is 96" high with 20 horizontal wires and vertical stays 12" apart. The wire is to be galvanized, 12 ° gauge or better.
- Use treated posts of no less than 6" in diameter. Depth of setting depends on soil types, with posts set in rocky soils to be approximately 4' in depth, and posts set in sandy soils to be approximately 6' in depth. Select treated posts preserved with a substance other than either creosote or pentachlorophenol.
- Braces are the backbone of any fence and must be built correctly. Braces may be single or double, however the width should always be 2-1/2 times the height of the fence. Cross members should be round wood posts, with lumber or landscape timbers not being acceptable. Use twitch wire, which consists of double wraps of wire, to anchor the cross members securely or the brace will fail.
- Generally, the use of 20' post centers is adequate for fencing, but place a rigid post at the lowest point of a dip and the crown of a hump. Make these posts larger than the line posts and set a little deeper. They will hold the fence up or down as required.
- Tie the wire off at both ends of the fence and tensioned to the middle of the pull to allow the fence to be tied off without being under tension.
- Use a locking knot, which locks vertical and horizontal wires

Wildlife fencing set back from road to provide safe area for animals caught on wrong side of fence.

Fence at wildlife crossing is intended to restrict animal movement across the road and to funnel wildlife toward crossing structures.

Fence detail showing 8' fencing above ground and 2' fencing buried underground to serve as a dig barrier. Use a locking knot to tie the two together.

together, so animals are not able to penetrate the fencing. The deep crimp in the horizontal wire maintains fence tension and allows the fence to follow rough terrain.

- Provide sufficient site opportunity at US 93 accesses to facilitate safe entry to US 93.

Water & Hydrology

The objective of the water runoff guidelines is to maintain the chemical, physical and biological quality of wetlands and streams, to prevent contamination of groundwater, and to provide erosion and sediment control.

- Use bioswales composed of indigenous plant materials to minimize problems with water runoff. In wetland areas, create ribbon marshes that run parallel to the road that can be used to filter runoff. Ribbon marshes would consist of cattails and other appropriate plants. Bioswales to be conducted using best management practices (BMPs).
- Fill material may be excavated from selected areas. It may be permissible to excavate down to or near high water table in order to create artificial wetlands. In particular, this could occur in Schall Flats.
- Restore streams that have been channelized due to previous road construction related to US 93. Return stream to their original channels.
- In Ninepipe, incorporate structures to maintain healthy ecological systems and to allow wildlife passage.
- Incorporate a filtering system as part of the final road design that will prevent water from running off the road into sensitive wetland and riparian areas.
- Use urban cross-sections in selected populated areas in order to control runoff. All urban cross-sections shall include a stormwater collection and treatment system utilizing BMPs.
- In wetland areas, incorporate runoff treatment facilities to ensure